

Mr. *WILLIAMSON'S*

A D D R E S S

T O T H E

C O U R T O F D I R E C T O R S ,

Together with his Proposals to them for improving and increasing

The Manufactures of Silk in *Bengal*,

So as to preclude the Necessity of importing Raw Silk
into *England*, from *Italy*, *Turky*, &c.

B E I N G

The Result of close Application, accurate Observations, and repeated
Experiments made upon the Spot, during his Residence, in *Bengal*,
for Fifteen Years, from 1756 to 1771.

MR. WILLIAMSON

A D D R E S S

TO THE

COURT OF DIRECTORS

Together with his Report on the progress and financial



The Master of the British Museum

So as to exclude the necessity of importing the
into England, from the year 1851

BE

The Report of the Application of the
Experiments made in the year 1851
for fifteen years, from 1835 to 1850

was appointed a writer on the Bengal establishment in September 1755, and arrived at Calcutta during the autumn and confusion, which the reduction of Calcutta by the British had occasioned. I served as volunteer on board the Kent, till the settlement was restored to the company by Admiral Watson, when I returned to my office. In July 1757, I was made deputy secretary, and a few days after the battle of Plassey, I was appointed to the situation of joint secretary, and continued in that office till the evacuation of the city, and the departure of the British from Calcutta. I was much to the satisfaction of Lord Clive, and his council, that they would have given me the

GENTLEMEN,
THE time of departure for your Bengal ships being arrived, permit me to repeat my solicitations and to renew my application, and to hope you will extend that indulgence and clemency towards me which your distinguished and known humanity have upon various occasions diffused to others. I trust that my sufferings and suspense for six years will be deemed ample atonement and expiation for the offences with which I have been charged, and then my past services will, I flatter myself, plead strongly for my restoration to the service.

I should be sorry to be thought my own panegyrist, or to arrogate to myself merit which did not belong to me, but when it is considered how few there are now existing of those gentlemen who formed the court, when I had the happiness and honour to be received into the service, a faithful narrative of facts will I presume be deemed pertinent to my present purpose: in the recital of which I shall be as concise as the subject will admit of, that I may not intrude too much or too long upon your patience and time.

I was

I was appointed a writer on the Bengal establishment in September 1755, and arrived at Fulta during the anarchy and confusion, which the reduction of Calcutta by Surage-ul-Dowla had occasioned. I served as volunteer on board the Kent, till the settlement was restored to the company by admiral Watson, when I returned to my civil capacity. In July 1757, I was made deputy secretary, and acted as secretary for the last four months Mr. John Cooke held that employ, and acquitted myself so much to the satisfaction of lord Clive, the then governor, and his council, that they would have given me the succession, had not the court of directors positively directed that no servant under the rank of a factor should, upon any account, be promoted to that office. November 1759, in defence of the settlement against the hostile intentions of the Dutch, I was dangerously wounded. The board took this opportunity of recommending me to the court of directors; as also upon my being superceded by eleven gentlemen who were sent from England as factors in 1760. I remained in my station of deputy till a vacancy (after I became factor) happened in July 1761, when I received the nomination, as Sir Eyre Coote, and general Carnac can testify, with the unanimous concurrence of the whole board, notwithstanding the jealousies, heart-burnings and dissensions which then reigned among them. These disputes, which I should not have mentioned, had they not been already made public by the parties themselves, greatly increased the labour of the office, and brought my health, by incessant application, into such a decline as to render my requisition to resign necessary, but the board were not willing to give their assent till they found that the change of air, and exemption from the fatigues of office, with which
they

they had indulged me for three months, had not had the desired effect; and then in March 1762, took the opportunity of promoting me to the station of naval store-keeper, a post before held by one of their own members.

The stations at the different subordinates becoming vacant in October 1762, by the inhuman massacre at Patna, I was at my own desire, in consequence of my health still continuing infirm, nominated third at Cossimbuzar. In May 1766, I became second of that factory, and from the confidence with which I was honoured by the chief, Mr. Sykes, I had the intire management of the silk investment for near three years, during which time I raised the investment without augmenting the price from one to £200,000; and established the factory at Jungypore, for the purchase of lack for the colouring of the piece goods; the company having been obliged (owing to the monopoly of that article by one merchant) to pay for it at the rate of sixteen Rupees per Maund; which I procured for them afterwards at the rate of four Rupees, in so large a quantity that after supplying the dyers with as much as was required for the company's investment, the surplus sold at public sale for a sum equal to the purchase of the whole. And finding from the different informations I had received that large quantities of silk might be produced in and about that district, one of the assistants of the factory was by my recommendation sent to reside at Jungypore for that purpose.

In an investment so extensive, in which not less than twenty thousand hands were employed, it could not but be expected that interests would clash, and cause many mercantile disputes and complaints to arise: these, the chief ever referred to me, and these, I ever redressed as far

far as in my power ; and I presume I must have given satisfaction to all parties, as I do not recollect any appeals have ever been preferred against my awards ; or complaints made of injustice, extortion, or oppression having ever been exercised by me.

Thus far I have shewn my zeal for the company's welfare, whilst I had the honour to serve them ; I will now with permission point out my attention to their interest, since I have been out of their service.

My knowledge of the French language enabled me, whilst at the island of Mauritius, after escaping shipwreck, to discover that the French were in daily expectation of transports and troops, in order to execute the scheme which had been planned, of attacking the company's possessions without any declaration of war. I instantly devised the following means of counter-acting their designs. I wrote the particulars of the intelligence I had received in the Hindostan language, and prevailed upon Mrs. Grueber to copy it, and forward it to Mr. Middleton, as a love letter from her maid to one of his servants, to whom I applied the company's Persian title as his name, in order to fix Mr. Middleton's attention to the interpretation. This paper of intelligence was duly received and clearly understood.—However, lest it might not be comprehended my anxiety induced me to send in duplicate, from the island of Bourbon, the particulars in English, to Mr. Middleton in Bengal, and to Mr. Hastings at Madras ; and as accurate an account of the islands as I could procure to Sir Eyre Coote, whom I understood to be on his return to India, all under cover to Mr. Law at Pondicherry. These the general of Mauritius opened, and sent a vessel, as I have since learnt, express to Bourbon to seize me, a few days after my departure from thence.

Since

Since my arrival in England, observing the affairs of the company embarrassed, I drew up and presented to the court of directors, after it had undergone the inspection, and received the approbation of some learned and eminent gentlemen, a scheme for relieving them from their then distressed situation, which your council afterwards deemed illegal.

My ardor has not abated, I have still directed my attention to their prosperity, and happy I shall think myself if I can by the exertion of my abilities and experience promote their advantage. With that view I now offer to your mature and serious consideration the accompanying proposals for improving and increasing the manufacture of silk in Bengal, so as to preclude the necessity of importing of raw silk into England from Italy, Turkey, &c. and if you approve of them, and think them worthy of being in whole or in part adopted, I beg leave to tender my services for conducting such part of them as you may think proper to entrust to my management, desiring your favour and countenance no longer than my actions and conduct shall prove me deserving.

I have the honour to be, with the greatest respect,

GENTLEMEN,

Your most obedient,

and most devoted

humble servant,

London, January 1775.

Since my arrival in England, collecting the share of
the company, and the I did it with pleasure to
the court of directors, after it had undergone the
section, and received the approbation of some learned
and eminent gentlemen, a letter for releasing them
from their third divided opinion, which was
alternately divided.

My order has not changed, I have not changed my
attention to their progress, and I still think
myself if I can by the extension of my abilities and
experience promote their advantage. With this view I
now offer to your wisdom and serious consideration the
second, saying proposals for improving and increasing the
manufacture of silk in Turkey, as to the
effect of importing of raw silk into England and Turkey
Turkey, and if you approve of them, and I shall then
worthy of being in whole or in part adopted, I shall have
to tender my services for conducting them part of them
as you may think proper to employ me, and I shall have
being your agent and correspondent no longer than my
actions and conduct shall prove me worthy of.

I have the honor to be, with the greatest respect,

Dear Sir,
Your most obedient,
and most devoted servant,
J. B. B.

P R O P O S A L S

Humbly submitted to the Consideration of the

COURT of DIRECTORS,

For affairs of the

United Company of Merchants of *England*,

TRADING TO THE

E A S T - I N D I E S,

For improving and increasing

The Manufactures of Silk in *Bengal*,

So as to preclude the Necessity of importing Raw Silk
into *England* from *Italy*, *Turky*, &c.

The Whole being the Result of close Application, accurate Observations, and repeated Experiments made on the Spot, during a Residence, in *Bengal*, of Fifteen Years, from 1756 to 1771,

By Mr. GEORGE WILLIAMSON,

Late in the Service of the East-India Company at *Bengal*.

P R O P O S A L S

Handy limited to the Consideration of the

COURT of DIRECTORS

8

For affairs of the

United Company of Merchants of England

TRADING TO THE

E A S T - I N D I E S

For improving and increasing

The Manufacture of Silk in Bengal

So as to provide the Necessity of importing Raw Silk
into England from India, Turkey, &c.

The Whole being the Result of close Application, accurate Ob-
servations, and repeated Experiments made on the spot, during a
Residence in Bengal of fifteen Years, from 1756 to 1771.

By MR. GEORGE WILLIAMSON

Late in the Service of the East-India Company in Bengal

P R O P O S A L S

Humbly submitted to the Consideration of

The Court of DIRECTORS, &c.

THE Author of the following Proposals for improving and en-
creasing the manufacture of Silk at Bengal, so as to preclude the
necessity of importing Raw Silk into England from Italy, Turkey, &c.
in order to fix the attention of the company to a subject on which
their well-doing and existence so materially depend, begs leave to
premise, that the several stations in which he had served them in
Bengal for many years, particularly whilst their investments of silk
were under his management at Cossimbuzar, had afforded him op-
portunities of conversing with those whose informations could be
depended upon; of making remarks upon every material occurrence;
and of trying experiments upon such points as his abilities and situ-
ation would admit of. And he flatters himself, had the Verelst
arrived safe, on which he was embarked as a passenger, and had the
misfortune to lose all his papers, he would have been able to have
produced many valuable documents to have elucidated his subject,
and to have enforced his proposals; at the same time, they would
have shewn that he had their welfare always at heart; and that he
had seized every occasion that had presented, to promote their interest
to the utmost of his power.

The Author is satisfied that although the trade to India is in ge-
neral condemned by writers as detrimental to Great-Britain, yet the

P R O P O S I T I O N (12)

greatest advocates for that opinion must admit that the importation of raw silk has been, and always must be of great utility to this kingdom, as it employs many thousands of both sexes from the age of six up to seventy; and produces what sound policy wishes, industry among the poor. To enumerate the different branches, is foreign to the present design, let it suffice to point out the various manufactories and throwing mills established in Spitalfields, and every part of England.

To treat of any matter with precision, past and present times should be contrasted.

With that view, he judged the most exact means of ascertaining what has been, and what is, the produce of silk in Bengal, would be a reference to the books of the customs kept at Moorshedabad.

These, upon examination, shewed him that, before and during Ali Verdi Cawn's government, duties were actually received yearly on fifty thousand Maunds of raw-silk.

That from his time to the year 1764, the produce of that article annually decreased, insomuch that the quantity paying duties did not at length exceed seventeen thousand Maunds.

And that, since the company have been possessed of the Dewanny, that product has been further diminished, duties having been received only on ten thousand Maunds.

However, in this it must be considered, that the amount of the investments of the respective European companies and their servants, together with the quantities smuggled by natives employed by Europeans have not been included.

It has been admitted by all the principal natives and inhabitants, that in the first mentioned period, when silk sold upon an average for four Rupees the Seer, the value of the quantity produced annually, exceeded one Crore of Rupees or £1,250,000. And in the latter, when the price of silk has been so high as ten Rupees per Seer, the

the value of the produce has been less than forty Lacks or £500,000*.

The peaceful state of the provinces and the great concourse of merchants of every denomination, and from every part of the globe, all upon the same footing without the smallest partiality shewn to any particular sect or complexion, were the causes why this branch of commerce flourished so considerably before the year 1756.

The wars and revolutions which succeeded, deterred many of the Delhi, Lahor, Guzzerat, Agra, and other inland merchants coming to the market as usual. And made many of the cultivators of the mulberry shrubs, rearers of worms, and winders of silk, through fear quit their habitations and fly the country, whilst others of the same occupations, allured by a prospect of plunder and additional pay, became followers of the camp in quality of porters, hostlers, grass-cutters, &c.

The possession of the Dewanny making the company anxious to increase the silk investment in order to get home the surplus revenue, it was thought necessary to monopolize the whole of that branch, as far as it was practicable without interfering with the other foreign companies. The measures adopted in order to affect this, had a con-

* *Account of Bengal Raw Silk imported from 1764 to 1772 inclusive, with the Invoice Price and Sale in Europe. †*

Year.	Bales.	Weight		Invo. Price per Seer.		Sale Price per Gr. lb.	
		Maund	Seer	From Rupees	To Rupees	From s. d.	To s. d.
1764	300	1136	17	8 1	4 10	30 4	22 0
1765	382	1448	17	7 8	4 8	33 4	24 2
1766	662	2608	21	8 2	4 11	30 0	22 8
1767	1127	4438	15	9 6	4 11	28 4	21 6
1768	1081	4294	24	8 5	5 1	29 2	12 6
1769	1121	4425	28	8 8	4 7	29 6	13 0
1770	1174	4630	6	10 9	5 10	30 6	11 2
1771	1018	4055	6	12 0	5 3	32 2	11 0
1772	804	2639	20	16 10	5 8	30 6	8 2

N. B. 1767, 1768, 1769, were provided by the Author.

† In 1765, 1770, 1771, 1772, the Company did not receive any raw Silk from China.

contrary tendency to what was wished or expected; the company reaped little or no advantages; the Dutch and French very considerable; for the cultivators, rearers, and winders, either sought protection from them or fled to some other district where they were unknown, and there took up new employs. These measures also kept away the inland merchants altogether, who annually imported specie to a considerable amount for their purchases of this commodity. The unequal rents of the lands likewise drove many of the cultivators out of the districts. These circumstances, added to the depopulation of the provinces by reason of the famine, were the chief causes of the decrease both in quantity and quality, and increase of price; for the necessary hands being wanting for fulfilling the investments required, the remaining few adulterated the quality, in order to compleat the quantity, and took that opportunity of raising the price.

Here it may not be improper to give a short sketch, illustrated with drawings, of the process of rearing and feeding of worms, and producing and winding of Putny into regular assortments of silk, as practised in Bengal.

There are three principal seasons called Bunds, in which the worms are hatched, and the pods compleated, viz. November, March, and July. The first is esteemed the best, by reason of the nourishment which the shrubs receive from the heavy dews which then fall nightly, and the distance of the sun. The last is the worst, sometimes owing to the intense heat of the sun parching the leaves, and at others to the heavy rains rendering the leaves watery.

The mulberry shrubs from which the leaves are plucked, and which seldom exceed two feet in height, being produced from cuttings, are planted in rows two feet asunder, at each of the fore-mentioned seasons, which commonly shoot out their buds in less than a week, and are generally full of leaves in less than a fortnight.

As

As soon as the buds have made their appearance, the eggs are exposed to the sun, whose genial warmth produces the worms about the third day in the first season, and about the second in the last. The worms when hatched are suffered to remain without food till the next morning, when a few tender leaves are strewed lightly over them; upon which those that are healthy climb almost instantaneously, and are then divided and placed gently with the leaves upon as many mats made of reeds six by four feet as are judged necessary. The same process is repeated daily till the worms are ready to spin; at which time they are removed to another mat prepared for that purpose, having a thin piece of bamboo fixed from the centre spirally, as a ledge for them to fasten their threads to, to begin their pods. During all this process, the persons who attend do not cohabit nor change their clothes, giving for reason, that the worms from their nice sense of smelling would conclude them to be strangers, and would refuse to be fed by them.

The mats upon which the worms are fed, are ranged one above another half a foot asunder, so as to admit of air, and to enable each to be moved without inconvenience the one to the other: till they have done spinning, the sun and east wind are entirely shut out from them, and then they are exposed to the rays of the former: but as they do not all finish their spinning together, and the sky is at some seasons overcast, great numbers make their way through the pods before the sun can possibly have sufficient influence to destroy the chrysalis. Thus infinite quantities of pods become useless; the delay and difficulty attending the winding, not answering the expence.

The towns and villages which produce the silk lay scattered, and at a considerable distance from each other. This renders it necessary to employ Delolls or principal brokers; who have their agents, termed Pycars, for the purchase of Putny; so called from the pods
being

being irregularly wound by the Cuttannies; a set of men who travel from place to place for employ, in the same manner as practised here by our mowers and reapers in the time of harvest.

Thus from hurry and want of attention, the Cuttannies wind thick and thin, fine and coarse threads together indiscriminately, frequently introducing the husk in which the worm was lodged to increase the weight; thereby rendering it absolutely necessary to have the Putny re-wound. This is first done on bobbins in order to preserve the different degrees of fineness; then reeled from those bobbins upon a large reel to separate and distinguish the colours of each assortment, from which reel the silk is taken as soon as dry to be twisted into skains. Want of care and proper management in the beginning augment the labour and expence, and diminish very considerably the lustre, strength and weight of the silk, by the second emersion in water and reeling, as described in plate 1. fig. 7, 8, and 9.

Although these are great disadvantages, yet they are small compared to those which follow.

In England, goods are not paid for until delivered.

In India, every manufacturer and workman must have advances. Money is first given to the Delolls to advance to the Pycars, that they may supply the Ghrists to enable them to purchase eggs to hatch, to prepare their huts, to pay the Cuttannies, and to till their grounds for raising the mulberry shrubs. Thus in order to procure November Bund Putny, which is seldom received till the month of January, the Delolls must have advances as early as September; and still it is uncertain whether the quantity which the advances were expected to produce, would be procured: for, should any of the Ghrists lose their worms by any sickness, or by the want of proper food, or by the delay of the Cuttannies, they become incapable of giving any Putny in return for the advances made them, and the rest of the Ghrists take the advantage of raising the price of their Putny, according

to

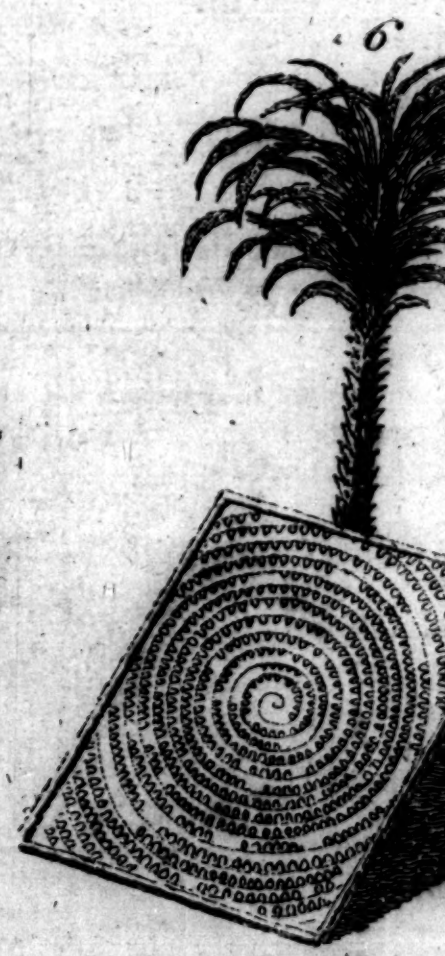
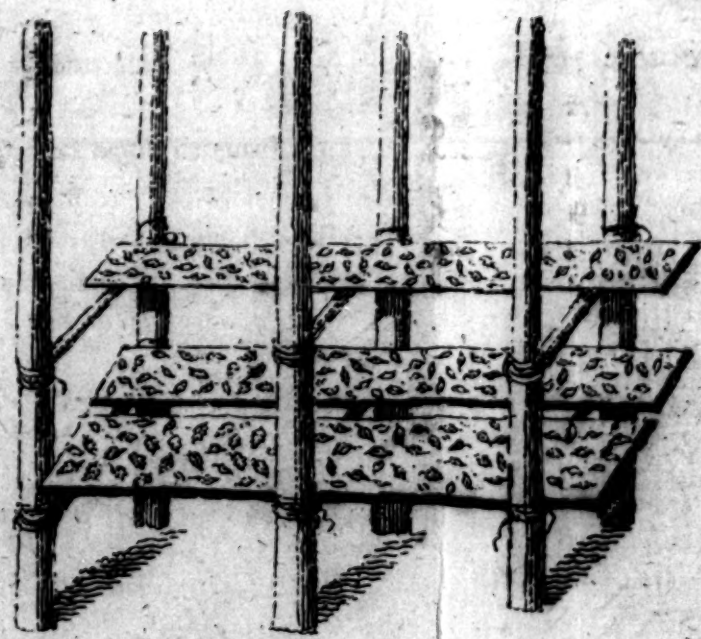
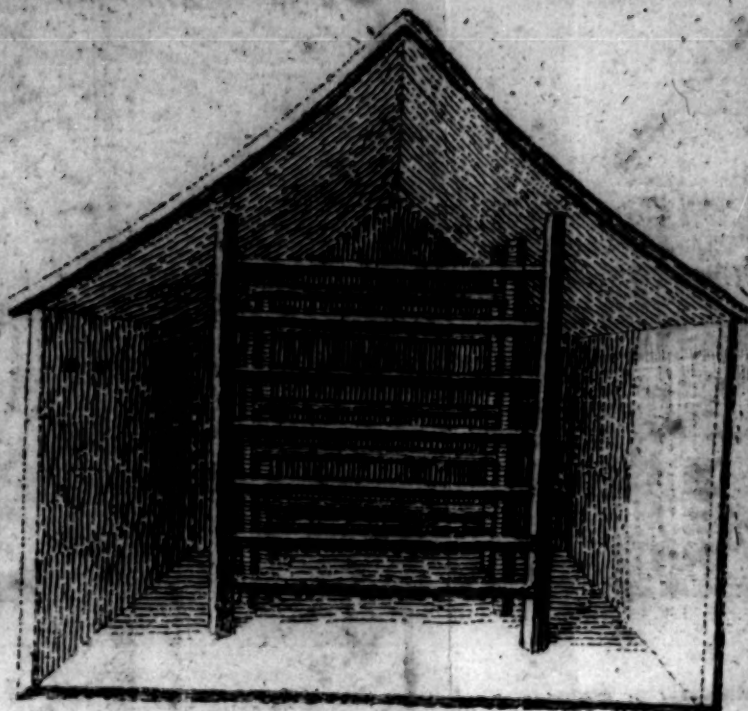


FIGURE 1. Represents a Mat on which the male and female Moths have been placed to copulate; the man removing the male flies and preventing the females from scattering their seed.

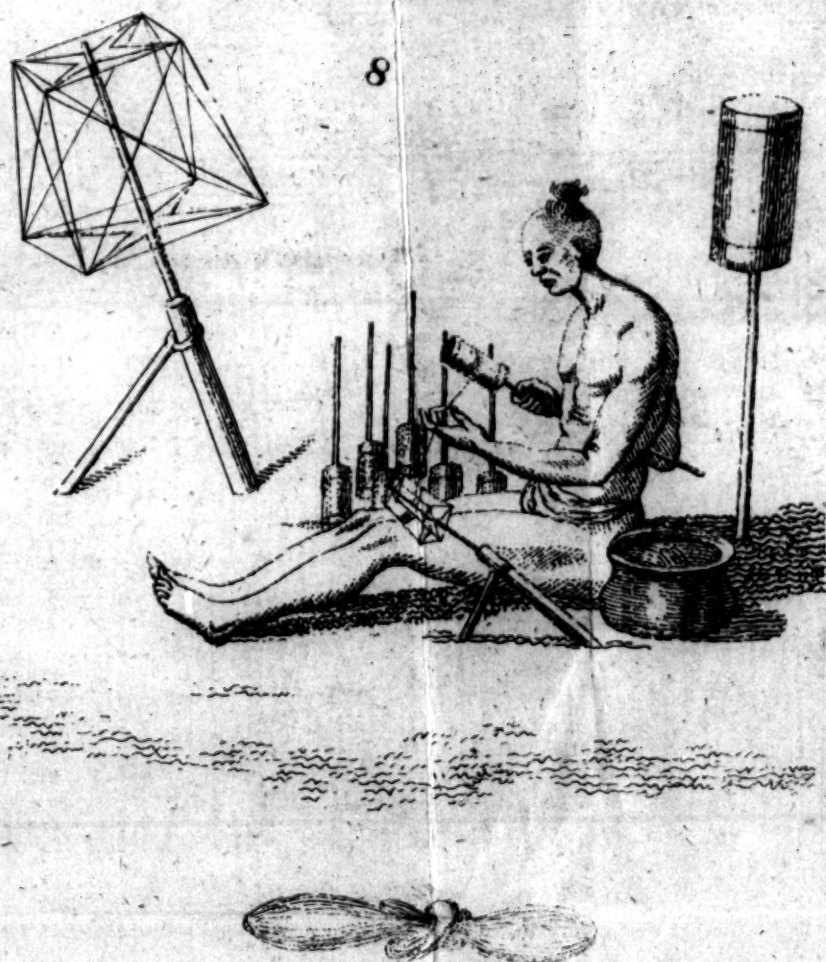
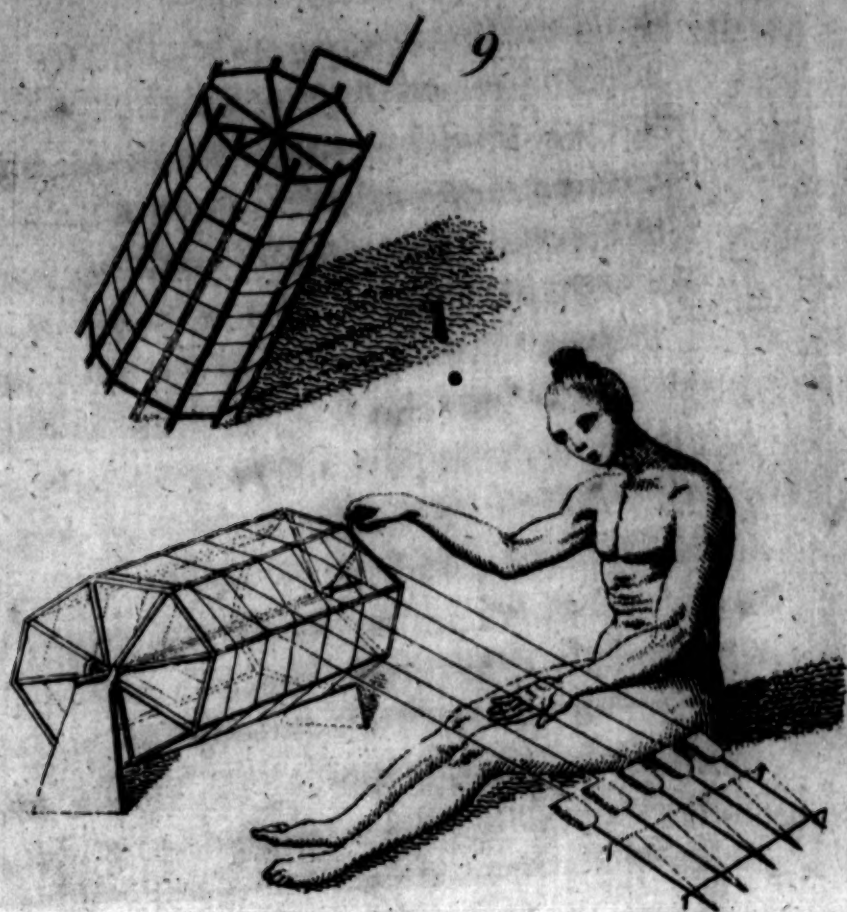
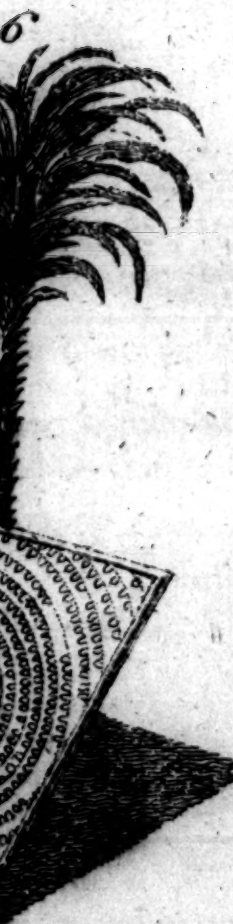
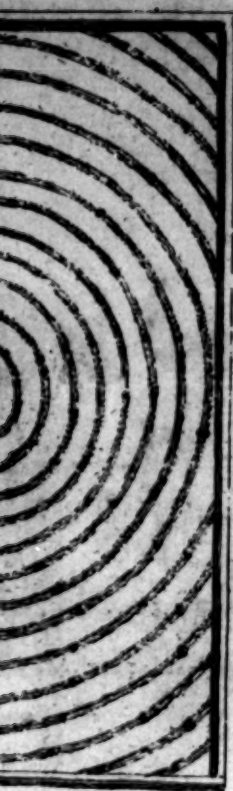
FIGURE 2. Represents the feeding of the Silk Worms, after being hatched, with mulberry leaves.

FIGURE 3. Is a section of the House in which the Silk Worms are kept.

FIGURE 4. Shews the stage upon which the
FIGURE 5. Represents a Mat with a piece to fix themselves to when they begin to spin.

FIGURE 6. Shews the said Mat placed in the Worms have done spinning.

FIGURE 7. Is a Cuttanny winding the Po and the split Bamboo used by him for the purpose.



which the mats, with the Silk Worms are placed.
a piece of Bamboo tied spirally for the Worms
spin.
placed in the sun to destroy the Chrysalis, after
the Pods into Putny, and shews also the Reels
the purpose.



FIGURE 8. Shews a Hank of Putny; and the winding of it upon bobbings into its proper assortments of fineness: also the Reel and Bobbing used upon the occasion.

FIGURE 9. Represents the winding from the Bobbings to the great Reel, to preserve the equality of fineness and colour in the Skains of Raw Silk. Also the Reel full of Skains placed in the Sun to dry.

FIGURE 10. Shews the method of making the Raw Silk, when taken from the large Reel, into Hanks, or Skains.

to the quantity produced: for the quality cannot be well discerned till finally re-wound into silk, some skains yielding $\frac{1}{2}$, some a $\frac{1}{4}$ and some a $\frac{1}{5}$ less than others; it being impossible and requiring more time than a man could possibly spare to examine them one by one.

This necessity of re-winding makes advances to the Sirdars or head winders, who have each of them under their command and direction from twenty to one hundred, agreeable to their connections and influence, unavoidable. These engage to wind every Cwt. of Putny at a stated allowance, consequently require to be well looked after, not only to see that they divide the assortments properly, but also to prevent their stealing, secreting or tearing the Putny. They require also to be watched that they do not wind for others by night, it being morally impossible that they can wind both day and night. To have recourse to justice in such case, is a manifest and immediate loss; the Putny remaining unwound soon goes to decay, especially if it has been put into water to dissolve the gum. All therefore that can be done, is to use every means that human foresight can suggest, to detect and prevent it: for which purpose a number of overseers and spies must be employed, whereby the expences are unavoidably encreased.

To obviate all these inconveniences, at the same time that ample provision be made for encreasing very considerably the company's investment of silk, it is proposed that the company do establish factories under the management and inspection of such gentlemen as may be best acquainted with this branch, under the controul, and subject to the orders of the person appointed to superintend and conduct the whole: that round about these factories such lands be appropriated for the growth of mulberry shrubs, as may be necessary for feeding the worms that may be judged proper to rear; that these grounds be well banked to prevent inundations; be furnished with wells to water the plants, when the seasons prove dry; to have mats ready to cover the shrubs from scorching heats, or hard

rains; and to have drains to prevent the water lodging, so as to prejudice the plants; the worms being as averse to feeding on leaves whose juice is watery, as on those that are withered. These precautions will insure the supply of good wholesome food for the worms; in the choice of which no animal can shew a greater nicety; and on which the quality of the silk intirely depends. That upon the confines of these grounds, or in such parts of them as may be found most convenient, huts be erected for the rearing and preserving of the worms; from whence the pods as soon as compleated be gathered and carried into the factory to be wound off, before the worms can possibly have time to work their way out. The same family may be employed in all the three departments: The man in the cultivation of the mulberry shrubs; the woman in the rearing of worms; and the children in winding of the silk: occasionally they can assist each other.

The lands being laid out in the manner directed, it will be extremely easy for the person residing at the factory, to see daily that the shrubs are kept in the best order; that the greatest attention is paid to the worms in their food and spinning, and that no time be lost in sending the pods into the factory to be wound off into those assortments which may be required for the Europe market, or for fabricating the piece goods.

The first four figures of plate 1, the Author thinks cannot be amended.

The placing the pods in the sun, as shewn in the 6th figure, he objects to, as diminishing the lustre of the silk. Such of the pods, therefore, as are in danger of being destroyed by the worms, must be put into large earthen pots, throwing four ounces of salt to every ten pounds of pods, and covering them with large dry leaves. The pots must be filled with these layers, and then stopped close, so that the air may be totally excluded; by which means the worms will

will be destroyed in a week, whereas they will live long enough to pierce the pods, if the least air gains admittance by any neglect.

Likewise in lieu of figures 7, 8, and 9, he would recommend the use of the machine in plate 2, by which one man will perform in six hours, what those three figures are engaged in twelve; and will give the silk a greater lustre than those machines which are in use among the Chinese or Italians.

The adopting this plan for providing the company with silk, will be productive to the company of the following good effects in a very few years. They may have as much as they require, of the best quality, at a low price; employing one third of the hands they now do; and without risk of contracting bad debts, at the same time that their sales and profits will be enlarged.

The islands of Cossimbuzar and Comercolly, which lay contiguous, will be a tract of country sufficiently large to answer all these purposes. The rest of the places producing silk, now monopolized by the company, will then be open to all private merchants to make purchases.

These merchants, it is humbly proposed, to encourage to provide assortments fit for the Europe market, and to indulge with the liberty of lading them upon the homeward bound ships to be paid for here, either agreeable to the prime cost in India, or to the sales at home, deducting a moderate duty.

Such a liberty will be productive of infinite advantages. It will in the first place encourage the culture of silk; and in the next, engage those sums in such remittances, which must otherwise be lent to our rivals in trade for that purpose. Bengal will then alone be able to furnish the English market with the full quantity which has hitherto been brought from Italy, Turkey, &c. and consequently save a considerable annual exportation of bullion to those parts, the pods of Bengal being no ways inferior to either, and produces

duces as good silk when properly reeled. The rival companies, particularly the French, will then not only be obliged to come to the sales in Leadenhall-Street for those goods which they are at present enabled to buy in India with English money at a very great advantage, owing to the exorbitant discount they exact on remits; but will also find themselves distressed for money even to support their settlements. English money having enabled the French to answer all mercantile exigencies, and to put the fortifications at Pondicherry into thorough repair; upwards of two millions sterling having been paid into their hands for bills before the author left Bengal.

Lest the plan here offered should be thought the offspring of fancy, the author thinks it necessary to declare that it derives its birth from actual and repeated experiments; and that in case it meets with the approbation of the company, and they are inclined to carry it into execution, he is ready to undertake the management, and will pledge himself, if properly assisted and supported, that it shall be crowned with success, and produce every advantage he has set forth.

DESCRIPTION OF PLATE II.

A. Table on which B, the great reel is fixed by C. brass bars, and by D. pins; which is put in motion by E. the foot board, which is fastened to F. the handle of the great reel by G. a screw. In H. the groove in the front of the table is placed I, a square frame which is moved backwards and forwards to spread the silk on the great reel. K. K. K. K. are four pulleys let into the upper bar of the slider, through which L. L. L. L. strings are passed which have at the ends M. M. M. M. brass rings. N. N. N. N. are hooks to fasten the strings to. O. O. O. O. are the guide wires. P. is a small reel projecting from the table, over which Q. Q. Q. Q. the silk passes through the rings, and the guide wires to the great reel. R. is a plate of brass with a small opening to introduce the silk, and to prevent the pods rising out of the water, fixed to S. the cauldron in which the pods are put, over T. a stove whose fire is fed by the mouth U.



